

WHAT IS CLAIMED IS:

1. A method for mimicking network devices,  
the method being performed in a computing device  
having first and second network interface cards, the  
5 first network interface card connecting the  
computing device to an external network and the  
second network interface card connecting the  
computing device to a local network, the method  
comprising the steps of:

10 receiving an incoming message from a client  
network device residing on the external network, the  
incoming message being directed to a legacy network  
device residing on the local network;

15 determining if the incoming message  
requires a function provided by an application  
module residing in the computing device;

20 redirecting, in the case that the incoming  
message requires a function provided by the  
application module, the incoming message to the  
application module which performs the required  
function in response to the incoming message; and

25 passing, in the case that the incoming  
message does not require a function provided by the  
application module, the incoming message through the  
local network to the legacy network device residing  
on the local network.

30 2. A method according to Claim 1, wherein  
in the redirecting step, the performance of the  
required function by the application module includes  
sending a response message from the application  
module over the external network to the client  
network device, the response message having a source

identification address identical to a source  
identification address of the legacy network device.

5           3. A method according to Claim 1, wherein  
in the redirecting step, the performance of the  
required function by the application module includes  
sending a local message from the application module  
over the local network to the legacy network device  
which performs a function in response to the local  
10       message.

15           4. A method according to Claim 1, wherein  
in the determining step, an inbound rules table is  
used to determine if the incoming message requires a  
function provided by an application module residing  
in the computing device.

20           5. A method according to Claim 4, wherein  
the inbound rules table contains a plurality of  
rules, each rule corresponding to one of a plurality  
of legacy network devices on the local network.

25           6. A method according to Claim 5, further  
comprising the step of discovering each of the  
plurality of legacy network devices on the local  
network by listening to the local network for  
messages from the legacy network devices, creating a  
target descriptor entry corresponding to each  
discovered legacy network device in a target  
30       descriptor table, and creating a rule corresponding  
to each target descriptor entry in the inbound rules  
table.

7. A method according to Claim 6, wherein the inbound rules table contains at least one rule which indicates whether a requested function of the corresponding legacy network device requires a function provided by an application module residing in the computing device.

8. A method according to Claim 7, wherein in the determining step, the incoming message is applied to the plurality of rules in the inbound rules table to determine if the incoming message requires a function provided by an application module residing in the computing device.

9. A method according to Claim 7, wherein each rule contains an IP address of the legacy network device corresponding to the rule to indicate whether a requested function of the corresponding legacy network device requires a function provided by an application module residing in the computing device.

10. A method according to Claim 7, wherein each rule contains a port identifier to indicate whether a requested function of the legacy network device corresponding to the rule requires a function provided by an application module residing in the computing device.

11. A method according to Claim 6, wherein the discovering step includes sending a discovery message to each discovered legacy network device and receiving discovery information in response to the

discovery message from the corresponding legacy network device, wherein the discovery information is placed in the target descriptor entry for the corresponding legacy network device.

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12. A method according to Claim 11, further comprising a polling step of sending a discovery message on a periodic basis to each discovered legacy network device, and receiving in response to the discovery message discovery information from the corresponding legacy network device, wherein the target descriptor entry is updated with the newly received discovery information.

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13. A method according to Claim 12, wherein in the case that discovery information is not received in response to the discovery message for a particular one of the discovered legacy network devices, the target descriptor entry corresponding to the particular discovered legacy network device is deleted.

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14. A method according to Claim 6, further comprising the step of sending a notification to the application module for each discovered legacy network device, the notification containing information related to the target descriptor entry for the corresponding legacy network device.

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15. A method according to Claim 6, further comprising the step of publishing each target descriptor entry to the application module.

16. A method according to Claim 3, wherein  
the second network interface card is assigned a  
preset IP address, and the local message contains a  
source IP address which is identical to the preset  
IP address.

17. A method according to Claim 3, wherein  
the local message contains a source IP address which  
is identical to a source IP address of the client  
network device.

18. A method according to Claim 3, wherein  
the local message contains a source IP address which  
is identical to a source IP address of the second  
network interface card.

19. A method according to Claim 1, wherein  
in the redirecting step, the performance of the  
required function by the application module includes  
preparation of an outbound message for delivery to a  
designated device on one of the external network and  
the local network, and a routing table is used to  
determine which one of the external network and the  
local network is used for sending the outbound  
message to the designated device.

20. A method according to Claim 19,  
wherein the routing table contains a cross-reference  
indicator for each legacy network device to indicate  
which one of the external network and the local  
network is used for sending the outbound message to  
the designated device.

21. A method according to Claim 19,  
wherein the routing table is used to determine  
whether a preset IP address of the second network  
interface card or a source IP address of the client  
5 network device is used as a source IP address in the  
outbound message.

22. A method according to Claim 7, further  
comprising the step of tracking a port identifier of  
10 a port opened by the application module and creating  
a rule in the inbound rules table corresponding to  
the port identifier, wherein in the determining  
step, the rule is used to redirect a message from  
the external network to the application module if  
15 the message contains the port identifier  
corresponding to the rule.

23. A method according to Claim 22,  
further comprising the steps of tracking an initial  
20 legacy port identifier of a port opened by a legacy  
network device, mapping the initial legacy port  
identifier to a new legacy port identifier, creating  
a first map rule in the inbound rules table  
corresponding to the legacy network device which  
25 maps the initial legacy port identifier to the new  
legacy port identifier, and creating a second map  
rule in an outbound rules table corresponding to the  
legacy network device which maps the new legacy port  
identifier to the initial legacy port identifier.

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24. A method according to Claim 4, wherein  
the local network is a USB network, the legacy  
network device is a printer, and the inbound rules

table contains rules which are used in the determining step to redirect an incoming message for the printer from the external network to the application module which sends a USB message over the local network to the printer in response to the incoming message.

25. A method according to Claim 4, wherein the local network is a USB network, the legacy network device is a digital camera, and further including the steps of downloading a digital image to the application module from the digital camera via the local network, and sending the digital image to a server on the external network.

26. A method according to Claim 4, wherein the inbound rules table contains rules which are used in the determining step to route an incoming message from the external network a network device on the local network.

27. A method according to Claim 4, wherein the inbound rules table contains rules which are used in the determining step to capture an incoming message from the external network and further including the step of preventing transmission of the incoming message on the local network.

28. A method according to Claim 4, wherein the inbound rules table contains rules which are used in the determining step to determine that all incoming messages from the external network do not require a function provided by the application module, whereby all incoming messages from the

external network are passed through the local network.

5           29. A method according to Claim 4, wherein the application module is a file server which sends at least one file over the local network to the legacy network device and at least one file over the external network to the client network device.

10           30. A method according to Claim 4, wherein the inbound rules table contains rules which are used in the determining step to determine that a set of designated incoming messages are copied to the application module which records each of the set of  
15 designated incoming messages.

20           31. A method according to Claim 4, wherein the inbound rules table contains rules which are used in the determining step to detect if the incoming message is an undesirable message, and in the case that the incoming message is an undesirable message, determining that the incoming message requires a function provided by the application module, whereby the incoming message is redirected  
25 to the application module.

30           32. A method according to Claim 1, further including the step of transmitting a plurality of undesirable messages from the application module over one of the external network and the local network.



33. A method for mimicking network devices, the method being performed in a computing device having first and second network interface cards, the first network interface card connecting the computing device to an external network and the second network interface card connecting the computing device to a local network, the method comprising the steps of:

discovering a plurality of legacy network printers on the local network by detecting messages on the local network from each of the plurality of legacy network printers;

creating a rule in a rules table for each of the discovered legacy network printers, each rule containing the IP address of the corresponding legacy network printer and indicating whether an application module in the computing device performs a function on behalf of the corresponding legacy network printer;

receiving an incoming message from a client network device residing on the external network, the incoming message being directed to an IP address of a designated one of the plurality of legacy network printers;

determining, based on the rule corresponding to the designated legacy network printer, if the incoming message requires a function performed by the application module;

redirecting, in the case that the incoming message requires support from the application module, the incoming message to the application module which performs the required function in response to the incoming message; and

passing, in the case that the incoming message does not require a function provided by the application module, the incoming message through the local network to the designated legacy network printer.

34. A computing device for mimicking network devices, the computing device having first and second network interface cards, the first network interface card connecting the computing device to an external network and the second network interface card connecting the computing device to a local network, said computing device comprising:

a program memory for storing process steps executable to perform a method according to any of Claims 1 to 33; and

a processor for executing the process steps stored in said program memory.

35. Computer-executable process steps stored on a computer readable medium, said computer-executable process steps for mimicking network devices and for being performed in a computing device having first and second network interface cards, the first network interface card connecting the computing device to an external network and the second network interface card connecting the computing device to a local network, said computer-executable process steps comprising process steps executable to perform a method according to any of Claims 1 to 33.

36. A computer-readable medium which stores computer-executable process steps, the computer-executable process steps to mimic network devices and to be performed in a computing device having first and second network interface cards, the first network interface card connecting the computing device to an external network and the second network interface card connecting the computing device to a local network, said computer-executable process steps comprising process steps executable to perform a method according to any of Claims 1 to 33.